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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,073	08/02/2005	Giovanni Battista Marcolla	SIB-PT001	8768
3624	7590	05/04/2006	EXAMINER	
VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			KNOX, STEWART	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/511,073		MARCOLLA, GIOVANNI BATTISTA	
	<b>Examiner</b>		<b>Art Unit</b>	
	Stewart T. Knox		3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “maneuverable mechanical arm” of the air means, the “gun able to shoot shells” of the terrestrial means, the “powerful compressor,” the “multifunctional articulated arm” with “four rotary joints and a 360° rotating fifth wheel,” “mounted mechanical drilling and grasping means,” and “four or six independent driving wheels...with an autonomous electrically or hydropneumatically operated motor” of the terrestrial means must be shown or the feature(s) canceled from the claim(s). It is also unclear whether the extension from the terrestrial means T is the gun or the multifunctional articulated arm. The preceding list is considered exemplary and the claims should be reviewed thoroughly for compliance. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet”

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the contents of paragraph 19 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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3. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37

CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: no mention is made of what a “control and check unit” is, as recited in claim 1.

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5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Where the written description only implicitly or inherently sets forth the structure, materials, or acts corresponding to a means-plus-function, applicant must clarify the disclosure to explicitly state, with reference to the terms and phrases of the claim element, what structure, materials, or acts perform the function recited in the claim elements and equivalents thereof. (See MPEP 2181). Correction of the following is required: applicant must clarify the disclosure to explicitly state, with reference to the terms and phrases of the claim element, what structure, materials, or acts perform the remote controlled self-propelled terrestrial means, the autonomous terrestrial means, and the mounted mechanical drilling and grasping means recited in the claim elements and equivalents thereof.

6. A substitute specification of the claims is required pursuant to 37 CFR 1.125(a) because the amended specification of 10/12/2004 does not contain markings of what has and has not been changed. See guidelines below.

7. A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification

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contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

***Claim Rejections - 35 USC § 112-1<sup>st</sup>***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear what a “nuclearly scanning sensor” is or how it works to be “able to recognize the nature of the materials forming a buried contrivance M” (specification, page 3), “...as allowed by sophisticated computerized programs” (specification, page 4). It is also not clear what the maneuverable mechanical arm on the air means does, or whether or not it is attached to the nuclearly scanning sensor.

10. Claim 5 recites that the gun uses high pressure mixed propellant in connection with a powerful compressor. It is unclear what the powerful compressor is supposed to do, or if the high pressure propellant is the same as the ballistite recited previously. Furthermore, it is unclear how the mixed propellant and powerful compressor function in combination with the ballistite propellant, since they are disclosed as being alternatives to one another (specification, page 4, paragraph 22). Because claim 5 depends on claim 4, the gun is being claimed as using a fire-

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producing propellant (ballistite, generally a solid fuel) AND a high pressure mixed propellant, without the disclosure of how this would operate, if they are capable of operating together, and what exactly a high pressure solid propellant is.

11. Claim 7 recites a pressure sensor that is “able to determine the consistency of possible bodies” but there is no description in the specification as to *how* it determines the consistency of bodies and subsequently adjusts the grasping force.

12. Claim 8 recites a multifunctional arm articulated on four rotary joints and a 360° rotating fifth wheel, but no description is given in the specification as to the purpose, use, or function of these parts. It is unclear what the four joints are supposed to do, how the fifth wheel rotates, and how either one relates to the arm.

***Claim Rejections - 35 USC § 112-2<sup>nd</sup>***

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. The claims are generally narrative failing to conform with current U.S. practice. Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation (See MPEP 608.01(i)(i))

16. Claim 1 recites the limitation "the control and check unit" in line 5. There is insufficient antecedent basis for this limitation in the claim.



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17. Claim 1 recites a “nuclearly scanning sensor” but it is unclear what this is, what it does, or how it works. Appropriate clarification is required.

18. Claim 2 recites a gun able to shoot shells of, among other things, liquid masses. It is unclear what a shell with a liquid mass is, and does not appear to be clarified in the specification.

19. Claim 5 recites the use of a “powerful” compressor. It is unclear what range is encompassed by “powerful.”

20. Regarding claims 1-10, the word "means" is preceded by the word(s) remote controlled air, autonomous terrestrial, and remote-controlled self-propelled terrestrial in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

### ***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over McFee (6,026,135) in view of Bryan (6,870,370) in view of Hewish (IDS, reference AF).** McFee discloses a mine removal system in mined areas comprising a remote controlled self-propelled terrestrial means (figure 1, elements 5 and 6) and an autonomous terrestrial means (7) with

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manned crew forming the control and check unit of the system, a nuclearly scanning sensor (6), and a movable mechanical arm (holding camera 40). McFee does not disclose a remote controlled air-means on which is mounted the nuclearly scanning sensor and maneuverable mechanical arm.

23. Bryan teaches mounting a mine detection scanner on air-means acting above the ground in order to cover larger areas of ground with less risk of injury or accidental detonation (col. 1 lines 42-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the TNA scanner and arm-mounted camera of McFee to be carried on an air means as taught by Bryan, since such a modification would provide the scanner and any users with an additional amount of protection against unexploded ordinance by being above the ground.

24. Bryan does not disclose that the air means is remote-controlled. Hewish teaches remote-controlled air-means for use in de-mining operations. Hewish does not explicitly state why a remote-controlled air-means is used, but it appears that it is used to further isolate users from the potential danger of mines (perhaps, for example, from anti-helicopter mines). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the air means of Bryan remote-controlled as taught by Hewish since such a modification would provide any user of the air means with increased safety while the device is in operation.

25. **Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over McFee, Bryan, and Hewish as applied to claim 1 above.** McFee in combination with the others does not explicitly teach the maneuverable arm being electrically or hydraulically operated with an action range of about 280°.

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26. With respect to the operation of the arm, it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the mechanical arm electrically or hydraulically, since both are well-known in the art as being suitable means for remotely operating an arm device.

27. With respect to the operating range of the mechanical arm, McFee does not explicitly disclose a range of 280°. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the arm within the range of 280°, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Applicant has furthermore not provided that the range of about 280° provides an advantage, is used for a particular purpose, or solves a stated problem.

28. **Claim 9 is rejected under 35 U.S.C. 103(a) as being obvious over McFee, Bryan, and Hewish as applied to claim 1 above.** McFee discloses terrestrial means with hydropneumatically-driven wheels (col. 7 line 62). McFee does not disclose four or six such wheels. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the terrestrial means as taught by McFee to have four or six wheels, because Applicant has not disclosed that four or six wheels provide an advantage, are used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with eight wheels as taught by McFee, because it provides stability for traversing rough terrain, and since it appears to be an arbitrary design consideration which fails to patentably distinguish over McFee. Therefore, it

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would have been an obvious matter of design choice to modify McFee to obtain the invention as specified in the claims.

29. **Claims 2, 3, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McFee, Bryan, and Hewish as applied to claim 1 above, and further in view of Jones (6,802,237).** McFee teaches that mines may be removed in “follow-up neutralization” (Field of the Invention) but does not teach specific means for doing this such as the terrestrial means T being provided with a gun with propellant or an articulated arm.

30. In regards to claims 2 and 3, Jones teaches a terrestrial means T provided with a gun (50) able to shoot shells formed of solid masses using a fire-producing propellant (col. 2 lines 10-13, col. 5 lines 28-63) in order to neutralize or destroy buried mines underground. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the terrestrial means of McFee to include a propellant-powered gun as taught by Jones, since such a modification would provide the mine removal system of McFee with a follow-up neutralization system to destroy the mines after they have been detected.

31. In regards to claims 7 and 10, Jones teaches a terrestrial means T provided with a multifunctional articulated arm (70) on which are mounted mechanical drilling and grasping means (col. 7 line 13) where the grasping means are formed of an electro-hydraulic telescopic gripper (72), and what can be considered a pressure sensor to detect the consistency of bodies and pick them up without squashing (using the camera 46 to create stereoscopic images of the mine and allow the user to precisely control the claw and shovel so as to avoid squashing or detonating the mine). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the terrestrial means of McFee to include a multifunctional

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articulated arm as taught by Jones, since such a modification would provide the mine removal system of McFee with a follow-up neutralization system to remove the mines from the ground after they have been detected.

32. **Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable and obvious over McFee, Bryan, Hewish, and Jones as applied to claim 2 above, and further in view of Breed (5,136,920).** McFee in combination with the others discloses the claimed invention except for a gun able to shoot liquid masses with a ballistite fire-producing propellant. Breed teaches a gun that expels liquid (114) at high pressures in order to render inert or destroy mines (col. 3 lines 56-69, col. 4 lines 1-14) using a fire-producing propellant (explosive charge 102). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the terrestrial means of McFee as applied above to include the liquid gun of Breed, since such a modification would provide the terrestrial means with another equally valid device for destroying mines.

33. In regards to claim 4, Breed does not expressly disclose that the propellant powder used is ballistite. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any solid propellant, because Applicant has not disclosed that using ballistite provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a generic solid propellant charge as taught by Breed, because it provides the necessary force to eject a high-pressure "shell" or jet of liquid mass, and since it appears to be an arbitrary design consideration which fails to patentably distinguish over Breed. Therefore it

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would have been an obvious matter of design choice to modify Breed to obtain the invention as specified in the claims.

34. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over McFee, Bryan, Hewish, and Jones as applied to claims 1 and 7 above, and further in view of Vallis (EP 0230720).** McFee in combination with the others discloses the claimed invention including an articulated multifunctional arm but does not disclose four rotary joints and a 360° rotating fifth wheel. Vallis teaches a multifunctional arm for moving mines articulated on four rotary joints (8, 10, 15, 16) and a rotating fifth wheel (the gear enclosed in housing 24 for rotating the gripping mechanism, pg. 8 lines 1-4) in order to effect a wider range of motion for the mine-grasping arm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the grasping arm of Jones to utilize four rotary joints and fifth wheel as taught by Vallis, since such a modification would provide the grasping arm with a greater range of motion for manipulating mines or other objects that the terrestrial means encounters.

### ***Conclusion***

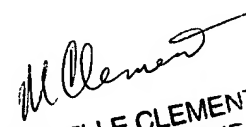
35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In regards to claim 5, a proper art rejection cannot be made because of the enablement issue that exists. However, the gun of Jones uses a high pressure mixed propellant—liquid bipropellant 59 composed of mixed parts 57A and 58A from pressurized reservoirs 57 and 58 (col. 5 lines 50-63)—and inherently uses a “powerful” compressor to pressurize the reservoirs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stewart T. Knox whose telephone number is (571) 272-8235. The examiner can normally be reached on Monday through Thursday, 8:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

STK

  
MICHELLE CLEMENT  
PRIMARY EXAMINER